Initial	Date
[illegible]	8/13/80
[illegible]	8/13/80
[illegible]	8/13

SS/EN
Tewaukon NWR

AUG 13 1980

MEMORANDUM

TO: Manager, Tewaukon NWR

FROM: Acting Regional Engineer, Region 6

SUBJECT: 1980 Annual Water Management Plan (AWMP)

Thank you for your 1980 AWMP. It was a very good report - one of the best we've received. The information that you provided will help to document beneficial use of water at the refuge.

You mentioned in the report the need for water gages at Parker Bay, Cutlers Marsh, Sprague Lake and Mann Lake. Staff gages can be obtained from Sam Wilborn, U.S. Geological Survey, Building 2101, NSTL STATION, Mississippi 39529, FTS # 494-3074, commercial # (601) 688-2107.

The idea of installing a gage in a perforated culvert at Sprague Lake for ice protection is a good one. You could also run open pipes from the culvert out into the lake, at a depth below low water line.

Please let us know if we can assist you in any way.

MARSHAL D. COX, JR.

cc: ARD, R&W
Area Manager, Bismarck

EN:JBOUDREAUX:JG:8/13/80

On February 21, 193 the designated agent of the Se tary of Agriculture submitted a Declamation of Filing to the North Dakota State Engineer claiming the use of unappropriated water in the Mauvais Coulee watershed to be used on six projects, including Lac Aux Mortes (Lake Alice). The right was filed for record May 25, 1938, claiming 10,260 acre-feet seasonal use and 13,680 acre-feet storage for a total of 23,940 acre-feet. Perfected Water Permit #169A (for Lake Alice control structure) dated November 21, 1967, recognized a priority date of May 25, 1938, for the refuge's water right. However, it established the right for 10,260 acre-feet annual use and 9,200 acre-feet storage, the amounts indicated on the Service's application for a permit (#169A) filed in 1966.

Lostwood NWR holds two perfected permits which were filed in 1965 to retain the Service's prescriptive water rights dating from the 1930's, in accordance with water laws passed in the 38th Legislative Session of the State of North Dakota (1963). Permit 1273P authorized the use of 124 acre-feet annually and storage to elevation 2295 in Elbow Lake for fish and wildlife use, with priority date of March 27, 1936. Permit 1274P authorized the use of 730 acre-feet annually and storage to elevation 2236 in Upper Lostwood Lake for fish and wildlife use, with priority date of January 18, 1937.

change to Mouch Bay Lake Tewaukon covers higher elev for Tewaukon

Tewaukon NWR holds three permits from the State of North Dakota for fish and wildlife use. Permit #1261 is a perfected permit, priority date of December 28, 1964, for 4852 acre-feet storage and 2287 acre-feet seasonal use for a total of 7139 acre-feet from the Wild Rice River. Permit #1262, priority date of December 28, 1964, is for 635 acre-feet storage and 495 acre-feet seasonal use for a total of 1130 acre-feet diverted from an unnamed creek into Sprague Lake (Pool #14). Permit #1263, priority date of December 28, 1964, is for 377 acre-feet storage and 309 acre-feet seasonal use for a total of 686 acre-feet from the WildlRice River. Lake Mann (Pool #13) is allotted 236 acre-feet and Pool #16, the remaining 450 acre-feet. A Statement of Completion and Beneficial Use was filed February 14, 1978, with the State Engineer for permits #1262 and #1263.

In addition to the permits, the refuge also claims a total of 12,158 acre-feet of water under a Declaration of Filing by the Department of Agriculture on September 1, 1934. These rights were filed for record with the North Dakota State Engineer August 30, 1937: #57, for 397 acre-feet storage and 312 acre-feet seasonal use for a total of 709 acre-feet on Clouds Lake, and #64, for 7198 acre-feet storage and 4251 acre-feet seasonal use for a total of 11,449 acre-feet on Lake Tewaukon and White Lake, all lakes tributary to the Wild Rice and Red Rivers.

Clouds Lake Spillway Elev 1177

" Lake Tewaukon 1147

White Lake (E + W + Cattle Marsh) 1149

(SGD) WILLIAM A. GODBY

Ref. in WR file to agreement w/ St Engr allowing FWS to utilize WR for refuge mgmt as long as priority not affected.

bc: circ rf
EN rf
EN:WILLISS:cw:9/13/79

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

INTER-OFFICE TRANSMITTAL

RECEIVED IN ENGINEERING

80 MAY 5

USFWS

- [ ] Director, _____
- [XX] Regional Director, Engineering--Don Stewart
- [ ] Project Leader, _____
- [ ] _____

- [XX] Regular Mail
- [ ] Air Mail
- [ ] Action
- [ ] Information

FROM	OFFICE	DATE
Refuges and Wildlife	Bismarck Area Office	May 1, 1980

SUBJECT

Attached is the water management plan for the Tewaukon NWR--Approved.

Most of the other refuge plans for North Dakota have already been submitted, and those remaining will be forwarded as soon as they are received.

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

approved 4/30/80

RECEIVED
APR 24 8 AM '80
USFWS
AREA OFFICE
BISMARCK, N.D.

OPTIONAL FILE COPY			
SEC	TO	SURNAME	DATE
AM			
AS			
ENV			
R&W			
FS			
ADC			
PE			
L&P			
FIC			

DATE: ~~April 21, 1980~~

TO : Area Manager, R&W
Bismarck, ND

FROM : Refuge Manager, Tewaukon NWR
Cayuga, ND

SUBJECT: Annual Water Management Plan

A map showing pool locations is attached.

RECEIVED IN ENGINEERING
30 MAY 5 PM
U.S. FWS

1979 Water Use

Experience has shown that the best waterfowl management of the larger, deeper pools is to imitate nature's way and drop the water levels occasionally. The prime villian is, by far, the carp. We have found that getting water levels at the two to three foot deep stage by either gravity flow or pumping allows the next winter to kill off the carp - much more effective than mechanical control screens or chemical control. This pattern has produced excellent results in past years on Mann Lake, Hepi Lake, East White, West White, Krause Slough and Parker Bay.

The rotting carp promote growth of invertebrates which are very attractive to duck broods. Lack of carp allows sago and other beneficial aquatic food plants to prosper.

Cattail take-overs may occur and have to be addressed by deeper flooding for a few years. To date, this has not occurred. The White Lakes had cattail problems before they were drawn down and mechanically controlled; they are in excellent shape now. The other four lakes listed are nearly all open and could use some cattails.

Lake Tewaukon (Pool 1): Operating level is 1148.5 and it froze one foot low in fall 1978. Spring brought a flood type runoff and the lake peaked at 1149.56 on April 24. Requests were received to hold it higher to attempt to slow downstream flooding. But this wasn't done because of the severe refuge bank (some in private land) and road damage which would have resulted coupled with the negligable impact this would have had on downstream, drainage spawned flood levels.

The lake stopped flowing over Dam 1 on May 8 at 1148.36 and slowly dropped from evaporation thereafter. Year's end freeze-up level was 1147.0.

This big lake is managed primarily as a fishing area - intense local pressure keeps us reminded of their interests. But waterfowl benefits do accrue as a rafting area. Over 100,000 gulls also raft on it each fall.

5010-108

Parker Bay (East end Lake Tewaukon): The Bay received only local, limited runoff due to being maintained closed off from the Lake. Shifting from fish to ducks, levels were allowed to drop via evaporation to produce a brood lake - which did occur quite nicely.

Fair sago growth occurred and divers made fine use of it also. Target depth is two to three feet to freeze out carp. More cattails would be beneficial also. A lower water gauge needs to be installed.

Cutler's March (Pool 2): The marsh flood peaked at 1156.3 on May 8. It was held at normal pool until September. Levels were than lowered to approximately 1149.0 feet for carp control and waterfowl use but early enough so the muskrats could recover. A lower water gauge should be installed.

Maka Pool (Pool 3): Peak flood levels were 1155.6 from which the pool was dried for island construction. It was dry by mid-June.

Pools 3A and 5: Same as Maka Pool except that dike and control structure repair was accomplished.

Pool 4: Highest level was 1155.8 in April. Normal levels were maintained. A heavy cattail growth is a problem.

Pool 6 and 7: Normal operating depths were maintained. Pool 7A was dry as it has been kept the last several years.

Hepi Lake (Pool 8): Peak levels occurred on April 22 at 1149.9 from which the structure released water to 1148.7 on May 8. Levels dropped by evaporation to an estimated four to five feet deep; a good bed of sago occurred and canvasback and other divers made good use of it in the fall.

Pool 9: No water control possible. This pool is just a nice pothole.

Pool 10: We can flood this pool deeply from Hepi Lake but feel shallow, two to three foot levels are better for waterfowl. Hence it was kept closed off, received only local runoff and remained relatively shallow.

West and East White Lakes (Pools 11 and 12): The lakes were manipulated extensively and very successfully in 1978. Conditions were near perfect with heavy brood use, no carp and a good cattail - water interspersion. For the second year in a row, no water was turned in from Cutler's Marsh.

Sprague Lake: This large Lake is our second and only other fishing lake. We have no control of it's levels; it just fills up and floods north into the Wild Rice River. Due to the good water year, it stayed high all summer. A gauge is needed which will withstand the ice. Biological Technician Schuler's idea of a gauge set in a vertical perforated culvert connected to the edge of the Lake by a permeable trench full of rock will be pursued.

Mann Lake: Continuing the 1978 start on converting from a fishing lake to a duck brood lake, a fine winter kill was noted from last fall's low water. After ice out, the surface looked almost like cream from the well decomposed fish. Invertebrate populations boomed and so did brood use - excellent brood numbers. Summer levels were allowed to drop by evaporation. A gauge is needed; December water depths were estimated as two to three feet.

Horseshoe Slough: Dike 1 again was kept closed to keep out Wild Rice River flood waters so the major dike construction could be finished. All seven ponds were dried as quickly as possible and the work was completed this summer. Next year we need good flows down the Wild Rice to give us the 650 to 750 acre feet desired over 250 surface acres.

Copies of the February 4, 1980 Annual Report of Water Use of the North Dakota State Water Commission are attached. These were submitted for Lake Tewaukon, Sprague Lake and Mann Lake (including Horseshoe Slough).

1980 Planned Water Use

Pool 1 (Lake Tewaukon): Hold at 1149 MSL which is higher than in past years to evaluate if significant bank erosion will occur. Objective is to hold as much water as possible to reduce winter fish kill.

Pool 2 (Cutler Marsh): Allow to fill to 1153.7 as necessary to moderate flows into Pool 1. Draw-down to 1152 as quickly as possible in late April and early May to reduce bank erosion and encourage cattail growth on west end. Draw-down as low as possible, approximately 1148, in late September to provide winter water in Pool 1, to control carp by winter kill and to reduce ice jamming in the spring.

Pool 3 (Maka Pool): Allow to fill to 1156 for waterfowl use yet keeping levels low on newly repaired or constructed dikes and islands. Draw-down as low as possible, approximately 1153.5, in late September to provide winter water in Pool 1, to control carp by winter kill and to reduce ice jamming in the spring.

Pool 4 (River Pool): Allow to fill to 1161.1 for waterfowl use. Draw-down as low as possible, approximately 1158.5 in late September to provide winter water in Pool 1, to control carp by winter kill and to reduce ice jamming in the spring.

Pool 6, 6A, 7: These small waterfowl ponds will be filled for waterfowl use and will naturally dry on their own. Any minor amounts of fall water will be drained if significant.

Pool 8 (Hepi Lake): Will be allowed to fill for waterfowl management and overflow down to the outlet level, 1148.7. Thereafter water levels will be allowed to drop by evaporation down to an estimated four to five feet deep.

Pool 9, 10: Managed as closed off natural potholes for waterfowl.

Pool 11, 12 (West, East White Lakes): Continue to use only local inflow to keep water levels low (two to three feet) for waterfowl use. No water will be turned in from Pool 2.

Sprague Lake: Manage as a fishing lake. Water levels are "controlled" by the elevation of the outlet culverts installed by the County road crews. A gauge should be installed.

Mann Lake: Continue to keep closed off from the Wild Rice River and allow only local runoff as inflow. Levels will continue to drop for waterfowl management to control carp and encourage aquatic plant growth.

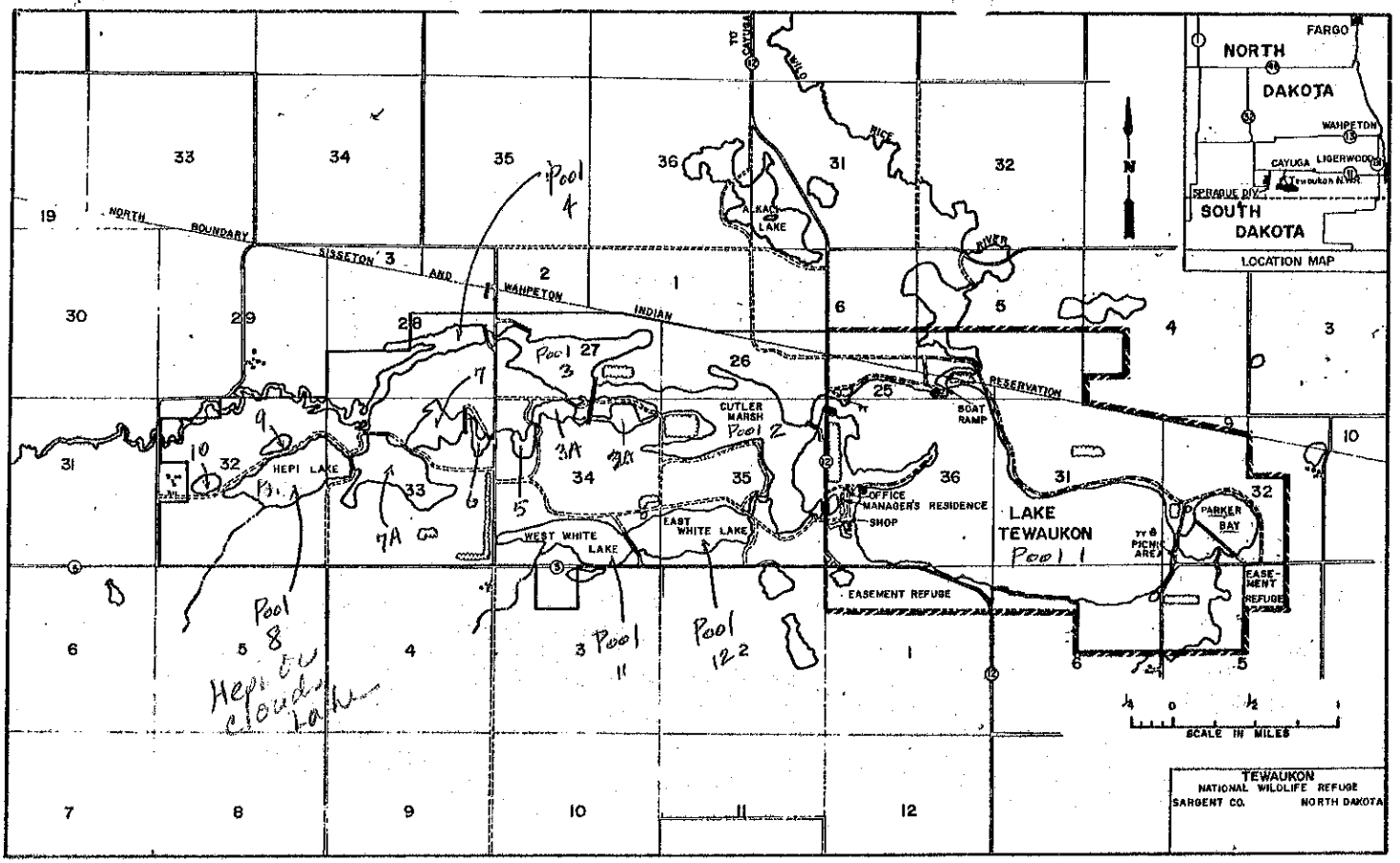
Horseshoe Slough: Development work for waterfowl management was completed last fall. Dam A will be opened to allow any flood water available from the Wild Rice River to flow in. To date the River overflowed starting March 21 and stopped April 3. An estimated 10 to 20% of the water capacity was filled. The final development is estimated at 225 to 240 surface acres at 1206 MSL in all pools except Pool A which will be 1207 to 1208 MSL. Gauges need to be installed.

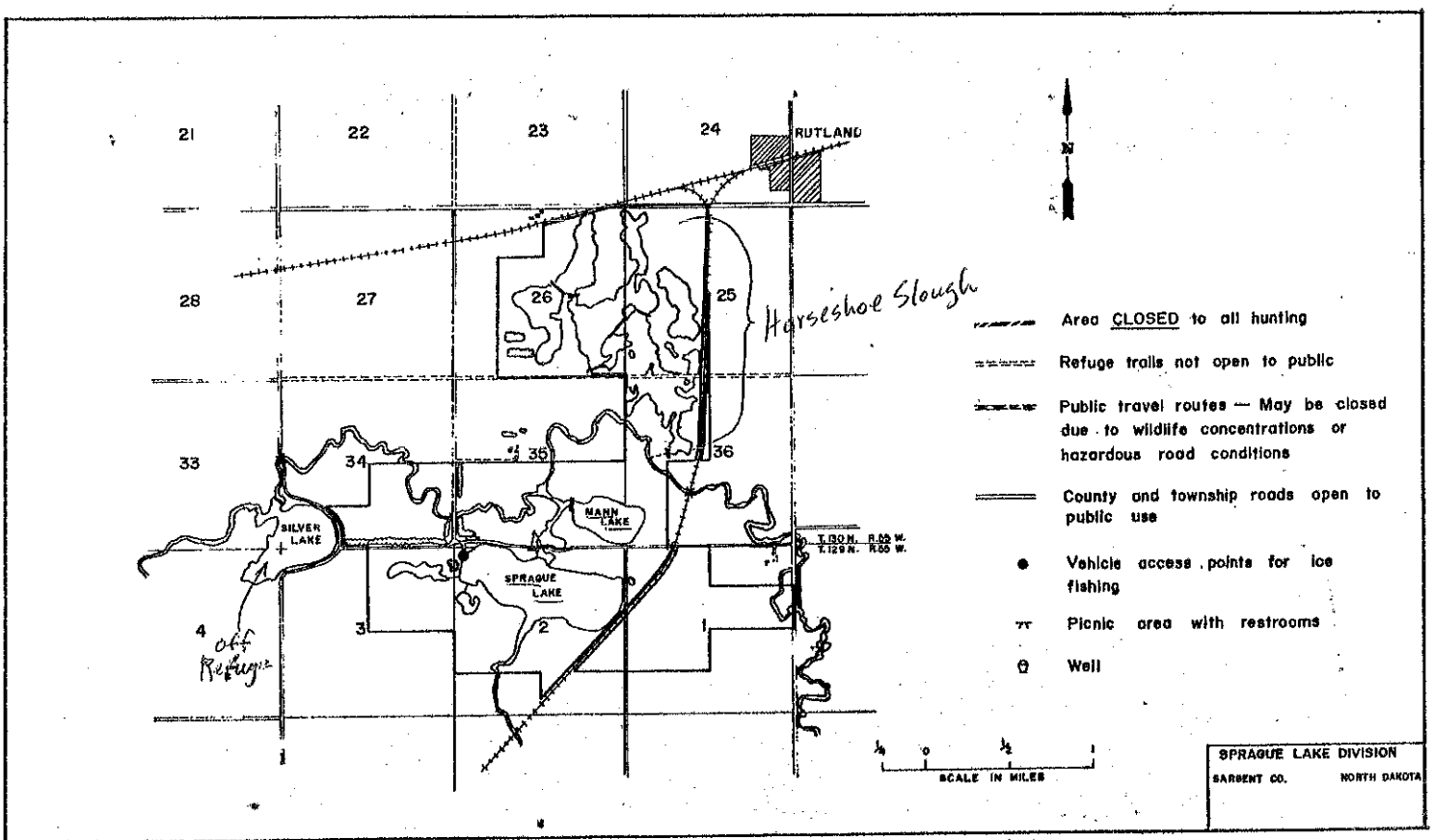
A copy of a pools - elevations - acres chart worked up in 1978 is attached.

David G. Potter

David G. Potter

POOLS LOCATION





NORTH DAKOTA STATE WATER COMMISSION
Annual Report of Water Use
(Pursuant to Section 61-04-27 of the North Dakota Century Code)

I. WATER PERMIT NUMBER 1261 Tewaukon

II. NAME OF PERMIT HOLDER Tewaukon National Wildlife Refuge

Address Cayuga, North Dakota 58013

County in Which Reservoir is Located Sargent

III. A. RECREATION RESERVOIRS
Reservoirs Having Recreational and Boating Facilities as Well as Fishing.

1. Was the reservoir used during the past year? _____

2. Estimated number of people that visited the site. _____

3. Estimated surface area of the reservoir in acres. _____

4. Did any damage occur last year due to spring runoff? Yes____ No ____
If yes, please explain.

B. RESERVOIRS FOR STOCKWATER, FISH, WILDLIFE, AND OTHER USES.

1. Was the reservoir used during the past year? YES

2. For what purpose is the reservoir primarily used? Fish & Wildlife

3. Estimated surface area of the reservoir in acres. ~~7139~~ 1270

4. Did any damage occur last year due to spring runoff? Yes X No ____
If yes, please explain
Moderate caving in of bank along south and west sides. Refuge roads under water on north, west and east sides with erosion damage done to gravel surface and some road shoulders.

Signature David Co. Potter

Date February 4, 1980

NORTH DAKOTA STATE WATER COMMISSION
Annual Report of Water Use
(Pursuant to Section 61-04-27 of the North Dakota Century Code)

I. WATER PERMIT NUMBER 1262 Tewaukon (Sprague Lk.)

II. NAME OF PERMIT HOLDER Tewaukon National Wildlife Refuge

Address Cayuga, North Dakota 58013

County in Which Reservoir is Located Sargent

III. A. RECREATION RESERVOIRS
Reservoirs Having Recreational and Boating Facilities as Well as Fishing.

1. Was the reservoir used during the past year? _____

2. Estimated number of people that visited the site. _____

3. Estimated surface area of the reservoir in acres. _____

4. Did any damage occur last year due to spring runoff? Yes____ No ____
If yes, please explain.

B. RESERVOIRS FOR STOCKWATER, FISH, WILDLIFE, AND OTHER USES.

1. Was the reservoir used during the past year? YES

2. For what purpose is the reservoir primarily used? Fish & Wildlife

3. Estimated surface area of the reservoir in acres. ~~496~~ 165*

4. Did any damage occur last year due to spring runoff? Yes X No ____
If yes, please explain

Minor caving in of south banks.

Signature David Co. Potter

Date February 4, 1980

* This was an estimate. Correct figure is 109 acres at elevation 1209 MSL.

NORTH DAKOTA STATE WATER COMMISSION
Annual Report of Water Use
(Pursuant to Section 61-04-27 of the North Dakota Century Code)

(covers Mann Lake & Horse Shoe Slough)

I. WATER PERMIT NUMBER 1263 Tewaukon (Mann Lk.)

II. NAME OF PERMIT HOLDER Tewaukon National Wildlife Refuge

Address Cayuga, North Dakota 58013

County in Which Reservoir is Located Sargent

III. A. RECREATION RESERVOIRS
Reservoirs Having Recreational and Boating Facilities as Well as Fishing.

1. Was the reservoir used during the past year? _____

2. Estimated number of people that visited the site. _____

3. Estimated surface area of the reservoir in acres. _____

4. Did any damage occur last year due to spring runoff? Yes____ No ____
If yes, please explain.

B. RESERVOIRS FOR STOCKWATER, FISH, WILDLIFE, AND OTHER USES.

1. Was the reservoir used during the past year? Yes

2. For what purpose is the reservoir primarily used? Fish & Wildlife

3. Estimated surface area of the reservoir in acres. ~~300~~ 275 225 Horseshoe 50 Mannlk

4. Did any damage occur last year due to spring runoff? Yes____ No X
If yes, please explain

Signature David Co. Potter

Date February 4, 1980

11-2-78

TEWAUKON NATIONAL WILDLIFE REFUGE
Pools, Elevations and Acres

POOL	ELEVATION	ACRES
Pool 1 - Tewaukon	1149	1015
Parker's Bay	1149	95
Pool 2 - Cutler's Marsh	1152	246
Pool 3	1156	125
Pool 4	1159	108
Pool 5	1160	10
Pool 6	1165	6
Pool 7	1178	127
Pool 8 - Hepi	1179	106
Pool 9	1167	10
Pool 10	1173	5.5
Pool 11 - W. White Lake	1151	80
Pool 12 - E. White Lake	1147	103
Pool 13 - Mann	1207	57
Pool 14 - Sprague	1209	109
Horseshoe Slough*		244
Pool 1	1210	119.7
Pool 2	1206	42.5
Pool 3	1206	10.3
Pool 4	1206	30.3+
Pool 5	1206	24.5
Pool 6	1206	2.8+
Pool 7	1206	14.5

* Pre-development estimates